IN THE CLAIMS

Please CANCEL claim 47 and AMEND claims 34, 38 and 48 as follows:

1. (Previously presented) An industrial vehicle comprising:

an engine;

a torque converter;

a transmission coupled to the engine by the torque converter;

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a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a hydraulic brake for braking the driving wheel, wherein the hydraulic brake generates a braking force, the magnitude of which corresponds to a hydraulic pressure applied to the hydraulic brake;

a brake valve for adjusting the hydraulic pressure applied to the hydraulic brake;

a brake actuator, which is moved by a human operator to actuate the hydraulic brake;

a sensor for detecting the rotational speed of the driving wheel; and

a controller, wherein the controller controls the brake valve such that the hydraulic brake brakes the driving wheel with a force of a normal value, which corresponds to a force applied to the brake actuator, wherein the controller computes the rotational deceleration of the driving wheel while braking based on the detected rotational speed, and wherein, when the computed rotational deceleration exceeds a predetermined deceleration determination value, the controller controls the brake valve such that the braking force of the hydraulic brake is set to a limit value, which is smaller than the normal value,

wherein the hydraulic brake is one of a forward clutch and a reverse clutch, which are included in the transmission, the forward clutch being engaged when the vehicle is moving forward, the reverse clutch being engaged when the vehicle is moving backward, each clutch producing an engaging force corresponding to an applied hydraulic pressure,

wherein the brake valve is one of a forward clutch valve for adjusting a hydraulic pressure applied to the forward clutch and a reverse clutch valve for adjusting a hydraulic pressure applied to the reverse clutch,

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wherein, when the vehicle is moving forward, the reverse clutch functions as the hydraulic brake and the reverse clutch valve functions as the brake valve, and wherein, when the vehicle is moving backward, the forward clutch functions as the hydraulic brake and the forward clutch valve functions as the brake valve.

2. (Previously presented) The industrial vehicle according to claim 5, wherein the hydraulic brake is one of a forward clutch and a reverse clutch, which are included in the transmission, the forward clutch being engaged when the vehicle is moving forward, the reverse clutch being engaged when the vehicle is moving backward, each clutch producing an engaging force corresponding to an applied hydraulic pressure, wherein the brake valve is one of a forward clutch valve for adjusting a hydraulic pressure applied to the forward clutch and a reverse clutch valve for adjusting a hydraulic pressure applied to the reverse clutch, wherein, when the vehicle is moving forward, the reverse clutch functions as the hydraulic brake and the reverse clutch valve functions as the brake valve, and wherein, when the vehicle is moving backward, the

forward clutch functions as the hydraulic brake and the forward clutch valve functions as the brake valve.

3. (Previously presented) The industrial vehicle according to claim 5, wherein the hydraulic brake is a hydraulic-clutch type parking brake.

4. (Previously presented) An industrial vehicle comprising:

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an engine;

a torque converter;

a transmission coupled to the engine by the torque converter;

a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a hydraulic brake for braking the driving wheel, wherein the hydraulic brake generates a braking force, the magnitude of which corresponds to a hydraulic pressure applied to the hydraulic brake;

a brake valve for adjusting the hydraulic pressure applied to the hydraulic brake;

a brake actuator, which is moved by a human operator to actuate the hydraulic brake;

a parking brake located on an output shaft;

a sensor for detecting the rotational speed of the driving wheel; and

a controller, wherein the controller controls the brake valve such that the hydraulic brake brakes the driving wheel with a force of a normal value, which corresponds to a force applied to the brake actuator, wherein the controller computes the rotational deceleration of

the driving wheel while braking based on the detected rotational speed, and wherein, when the computed rotational deceleration exceeds a predetermined deceleration determination value, the controller controls the brake valve such that the braking force of the hydraulic brake is set to a limit value, which is smaller than the normal value,

wherein, when the vehicle speed is lower than a predetermined determination value, the controller maintains the braking force of the hydraulic brake at the normal value regardless of the rotational deceleration, and

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wherein the parking brake is switched from a non-braking state to a braking state by the controller if the vehicle speed is lower than a predetermined value.

5. (Previously presented) An industrial vehicle comprising:

an engine;

a torque converter;

a transmission coupled to the engine by the torque converter;

a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a hydraulic brake for braking the driving wheel, wherein the hydraulic brake generates a braking force, the magnitude of which corresponds to a hydraulic pressure applied to the hydraulic brake;

a brake valve for adjusting the hydraulic pressure applied to the hydraulic brake;

a brake actuator, which is moved by a human operator to actuate the hydraulic brake;

a sensor for detecting the rotational speed of the driving wheel; and

a controller, wherein the controller controls the brake valve such that the hydraulic brake brakes the driving wheel with a force of a normal value, which corresponds to a force applied to the brake actuator, wherein the controller computes the rotational deceleration of the driving wheel while braking based on the detected rotational speed, and wherein, when the computed rotational deceleration exceeds a predetermined deceleration determination value, the controller controls the brake valve such that the braking force of the hydraulic brake is set to a limit value, which is smaller than the normal value,

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wherein the controller controls the brake valve such that the braking force of the hydraulic brake is increased to the normal value after being decreased to the limit value, and wherein the normal value of the braking force is gradually decreased each time the braking force is increased to the normal value from the limit value.

6. (Original) The industrial vehicle according to claim 5, wherein, when the rotational deceleration exceeds a predetermined reference value, the controller computes the difference between the rotational deceleration and the reference value, and wherein, when the braking force of the hydraulic brake is increased from the limit value to the normal value, the controller decreases the normal value by a degree that corresponds to an accumulated value of the difference.

7. (Original) The industrial vehicle according to claim 6, further comprising a mode selector for selecting one deceleration mode among plural deceleration modes for determining a

deceleration feel while braking, and wherein the controller modifies the reference value in accordance with the selected deceleration mode.

8. (Original) The industrial vehicle according to claim 1, wherein the controller increases the braking force of the hydraulic brake as the load weight on the vehicle increases.

9. (Previously presented) An industrial vehicle comprising:

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an engine;

a torque converter;

a transmission coupled to the engine by the torque converter;

a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a hydraulic brake located in a power transmission path between the torque converter and the driving wheel to brake the driving wheel, wherein the hydraulic brake generates a braking force, the magnitude of which corresponds to a hydraulic pressure applied to the hydraulic brake;

a brake valve for adjusting the hydraulic pressure applied to the hydraulic brake;

a brake actuator, which is moved by a human operator to actuate the hydraulic brake;

a sensor for detecting the rotational speed of the driving wheel;

a controller, wherein the controller controls the brake valve such that the hydraulic brake brakes the driving wheel with a force of a normal value, which corresponds to a

force applied to the brake actuator, wherein the controller computes the rotational deceleration of the driving wheel while braking based on the detected rotational speed, and wherein, when the computed rotational deceleration exceeds a predetermined deceleration determination value, the controller controls the brake valve such that the braking force of the hydraulic brake is set to a limit value, which is smaller than the normal value; and

a wheel brake located at the driving wheel to directly brake the driving wheel in response to actuation of the brake actuator.

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10. (Original) The industrial vehicle according to claim 1, wherein the driving wheel is one of left and right driving wheels, and the sensor is one of a plurality of sensors, each corresponding to one of the driving wheels, wherein the controller computes the rotational deceleration of each driving wheel based on the rotational speed detected by the corresponding sensor, and wherein, when the rotational deceleration of at least one of the driving wheels exceeds the deceleration determination value, the controller changes the braking force of the hydraulic brake to the limit value.

11. (Previously presented) An industrial vehicle comprising:

an engine;

a torque converter;

a transmission coupled to the engine by the torque converter, wherein the transmission includes a hydraulic forward clutch, which is engaged when the vehicle is moving forward, and a hydraulic reverse clutch, which is engaged when the vehicle is moving backward,

and wherein each clutch produces an engaging force, the magnitude of which corresponds to a hydraulic pressure applied to the clutch;

a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a hydraulic brake for braking the driving wheel, wherein the hydraulic brake generates a braking force, the magnitude of which corresponds to a hydraulic pressure applied to the hydraulic brake;

a brake valve for adjusting the hydraulic pressure applied to the hydraulic brake;

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a brake actuator, which is moved by a human operator to actuate the hydraulic brake;

a sensor for detecting the rotational speed of the driving wheel;

a controller, wherein the controller controls the brake valve such that the hydraulic brake brakes the driving wheel with a force of a normal value, which corresponds to a force applied to the brake actuator, wherein the controller computes the rotational deceleration of the driving wheel while braking based on the detected rotational speed, and wherein, when the computed rotational deceleration exceeds a predetermined deceleration determination value, the controller controls the brake valve such that the braking force of the hydraulic brake is set to a limit value, which is smaller than the normal value;

a forward clutch valve for adjusting a hydraulic pressure applied to the forward clutch;

a reverse clutch valve for adjusting a hydraulic pressure applied to the reverse clutch; and

a shift actuator, which is shifted between a forward position for moving the vehicle forward and a reverse position for moving the vehicle backward, wherein, when the shift actuator is shifted to the forward position, the controller controls the forward clutch valve to engage the forward clutch, and when the shift actuator is shifted to the reverse position, the controller controls the reverse clutch valve to engage the reverse clutch, and wherein, when direction switching is performed, in which the shift actuator is moved from the forward position to the reverse position or from the reverse position to the forward position while the vehicle is moving, the controller executes a vehicle deceleration control procedure for switching the moving direction of the vehicle.

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12. (Original) The industrial vehicle according to claim 11, wherein, during the vehicle deceleration control procedure, the controller limits the engine speed to be equal to or lower than a predetermined upper limit value.

13. (Original) The industrial vehicle according to claim 12, wherein the controller changes the upper limit value in accordance with the weight of a load carried by the vehicle.

14. (Original) The industrial vehicle according to claim 11, wherein, during the vehicle deceleration control procedure, the controller controls one of the clutch valves that corresponds to a post-shifting clutch, which is one of the clutches that corresponds to the position of the shift actuator after the shift actuator is shifted, such that the post-shifting clutch brakes the driving wheel.

15. (Original) The industrial vehicle according to claim 14, wherein, during the vehicle deceleration control procedure, the controller controls one of the clutch valves that corresponds to the post-shifting clutch such that the post-shifting clutch is partially engaged.

16. (Original) The industrial vehicle according to claim 14, further comprising a mode selector for selecting one deceleration mode among plural deceleration modes for determining a deceleration feel while braking, and wherein, during the vehicle deceleration control procedure, the controller changes the engaging force of the post-shifting clutch in accordance with the selected deceleration mode.

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17. (Original) The industrial vehicle according to claim 14, wherein, during the vehicle deceleration control procedure, the controller changes the engaging force of the post-shifting clutch in accordance with the weight of a load carried by the vehicle.

18. (Original) The industrial vehicle according to claim 14, wherein, during the vehicle deceleration control procedure, the controller computes the rotational deceleration of the driving wheel based on the rotational speed detected by the sensor, and wherein, when the computed rotational deceleration exceeds the deceleration determination value, the controller controls one of the clutch valves that corresponds to the post-shifting clutch to decrease the engaging force of the post-shifting clutch.

19. (Original) The industrial vehicle according to claim 18, wherein the driving wheel is one of left and right driving wheels, and the sensor is one of a plurality of sensors, each corresponding to one of the driving wheels, wherein the controller computes the rotational deceleration of each driving wheel based on the rotational speed detected by the corresponding sensor, and wherein, when the rotational deceleration of at least one of the driving wheels exceeds the deceleration determination value, the controller decreases the engaging force of the post-shifting clutch.

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20. (Original) The industrial vehicle according to claim 14, wherein, when direction switching is performed, the controller computes a predicted period, from when the direction switching is performed until when the vehicle speed reaches a level at which the vehicle can be started in a direction that is opposite to the current moving direction without creating shock, based on the rotational speed detected by the sensor, and wherein the controller continues the vehicle deceleration control procedure at least until the predicted period has elapsed.

21. (Original) The industrial vehicle according to claim 20, wherein, when direction switching is performed, the controller computes the vehicle speed based on the rotational speed detected by the sensor and computes the vehicle deceleration in accordance with the engaging force of the pest-shifting clutch, and wherein the cent roller computes the predicted period based on the computed vehicle speed and the computed vehicle deceleration.

22. (Original) The industrial vehicle according to claim 20, wherein, when the predicted period has elapsed and the vehicle speed, which is computed based on the detected rotational speed, is judged to have fallen below a predetermined value, the controller terminates the vehicle deceleration control procedure.

23. (Original) The industrial vehicle according to claim 20, wherein, when the predicted period has elapsed and the difference between an input rotational speed and an output rotational speed of the post-shifting clutch falls below a predetermined value, the controller terminates the vehicle deceleration control procedure.

24. (Original) The industrial vehicle according to claim 14, wherein the controller judges whether the driving wheel has changed from a decelerating state to an accelerating state based on the rotational speed detected by the sensor, and wherein the controller continues the vehicle deceleration control procedure at least until the driving wheel has changed to an accelerating state.

25. (Original) The industrial vehicle according to claim 24, wherein, when the driving wheel has changed to an accelerating state and the difference between an input rotational speed and an output rotational speed of the post-shifting clutch falls below a predetermined value, the controller terminates the vehicle deceleration control procedure.

26. (Original) The industrial vehicle according to claim 24, wherein, during the vehicle deceleration control procedure, the controller computes the rotational deceleration of the driving wheel based on the rotational speed detected by the sensor, and wherein, when the computed rotational deceleration exceeds the deceleration determination value, the controller controls one of the clutch valves that corresponds to the post-shifting clutch to decrease the engaging force of the post-shifting clutch, and wherein the controller stops judging whether the driving wheel has changed from a decelerating state to an accelerating state for a predetermined period during which the driving wheel can be shifted to an accelerating state due to a decrease of the engaging force of the post-shifting clutch.

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27. (Original) The industrial vehicle according to claim 14, wherein the controller starts a vehicle starting control procedure after terminating the vehicle deceleration control procedure, and wherein, during the vehicle starting control procedure, the controller controls one of the clutch valves that corresponds to the post-shifting clutch such that the post-shifting clutch rotates the driving wheel.

28. (Original) The industrial vehicle according to claim 27, wherein, during the vehicle starting control procedure, the controller computes the rotational acceleration of the driving wheel based on the rotational speed detected by the sensor, and wherein, when the computed acceleration exceeds a predetermined acceleration determination value, the controller controls one of the clutch valves that corresponds to the post-shifting clutch to decrease the

engaging force of the post-shifting clutch so that the power transmitted to the driving wheel decreases.

29. (Original) The industrial vehicle according to claim 28, wherein the driving wheel is one of left and right driving wheels, and the sensor is one of sensors, each corresponding to one of the driving wheels, wherein the controller computes the rotational acceleration of each driving wheel based on the rotational speed detected by the corresponding sensor, and wherein, when the rotational acceleration of at least one of the driving wheels exceeds the acceleration determination value, the controller decreases an engaging force of the post-shifting clutch.

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30. (Withdrawn) The industrial vehicle according to claim 1, wherein the transmission includes a hydraulic forward clutch, which is engaged when the vehicle is moving forward, and a hydraulic reverse clutch, which is engaged when the vehicle is moving backward, and wherein each clutch produces an engaging force, the magnitude of which corresponds to a hydraulic pressure applied to the clutch, the industrial vehicle further comprising:

a forward clutch valve for controlling the hydraulic pressure applied to the forward clutch;

a reverse clutch valve for controlling the hydraulic pressure applied to the reverse clutch; and

a shift actuator, which is shifted among a forward position for moving the vehicle forward, a reverse position for moving the vehicle backward and a neutral position for stopping

the vehicle, wherein, when the shift actuator is shifted to the forward position, the controller controls the forward clutch valve to engage the forward clutch, when the shift actuator is shifted to the reverse position, the controller controls the reverse clutch valve to engage the reverse clutch, and when the shift actuator is shifted to the neutral position, the controller controls the clutch valves to disengage the clutches, and wherein, when the shift actuator is shifted from the neutral position to the forward position or to the reverse position, the controller controls one of the clutch valves that corresponds to a post-shifting clutch, which is one of the clutches that corresponds to the position of the shift actuator after the shift actuator is shifted, such that the engaging force of the post-shifting clutch is temporarily maintained at an intermediate value, which is smaller than a maximum value of an engaging force of the post-shifting clutch, and is then increased to the maximum value.

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31. (Withdrawn) The industrial vehicle according to claim 30, wherein the controller changes the intermediate value in accordance with the weight of a load carried by the vehicle.

32. (Withdrawn) The industrial vehicle according to claim 30, wherein the controller gradually increases the intermediate value at a rate, which is determined in accordance with the engine speed.

33. (Withdrawn) The industrial vehicle according to claim 30, wherein, when the difference between an input rotational speed and an output rotational speed of the post-shifting clutch falls below a predetermined value, the controller increases the engaging force of the post-shifting clutch from the intermediate value to the maximum value.

34. (Presently amended) An industrial vehicle comprising:

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an engine;

a torque converter;

a transmission coupled to the engine by the torque converter, wherein the transmission includes a forward clutch, which is engaged when the vehicle is moving forward, and a reverse clutch, which is engaged when the vehicle is moving backward;

a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a sensor<u>, which corresponds to the driving wheel,</u> for detecting the rotational speed of the <u>corresponding</u> driving wheel; and

a controller for controlling the engine, wherein the controller computes the rotational acceleration of the driving wheel when the vehicle is accelerating based on the detected rotational speed, and wherein, when the computed rotational acceleration exceeds an acceleration determination value, which is predetermined for judging whether the driving wheel is skidding, the controller controls the engine output to limit the power transmitted to the driving wheel.

35. (Withdrawn) The industrial vehicle according to claim 34, wherein the controller computes an accumulated value of the difference between the rotational acceleration and the acceleration determination value from when the rotational acceleration exceeds the acceleration determination value due to acceleration of the vehicle, and wherein the controller limits the engine output only when the accumulated value is a positive value.

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36. (Withdrawn) The industrial vehicle according to claim 34, further comprising a brake for braking the driving wheel, wherein, when the rotational acceleration exceeds the acceleration determination value, the controller causes the brake to brake the driving wheel.

37. (Withdrawn) The industrial vehicle according to claim 34, wherein the driving wheel is one of left and right driving wheels, and the sensor is one of sensors, each corresponding to one of the driving wheels, wherein the controller computes the rotational acceleration of each driving wheel based on the rotational speed detected by the corresponding sensor, and wherein, when the rotational acceleration of at least one of the driving wheels exceeds the acceleration determination value, the controller limits the engine output.

38. (Presently amended) An industrial vehicle comprising:

an engine;

a torque converter;

a transmission coupled to the engine by the torque converter, wherein the transmission includes a hydraulic forward clutch, which is engaged when the vehicle is moving

forward, and a hydraulic reverse clutch, which is engaged when the vehicle is moving backward, and wherein each clutch produces an engaging force, the magnitude of which corresponds to a hydraulic pressure applied to the clutch;

a forward clutch valve for controlling the hydraulic pressure applied to the forward clutch;

a reverse clutch valve for controlling the hydraulic pressure applied to the reverse clutch;

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a driving wheel, wherein the driving wheel is rotated by power that is transmitted from the transmission;

a sensor, which corresponds to the driving wheel, for detecting the rotational speed of the corresponding driving wheel; and

a controller for controlling the clutch valves, wherein the controller computes the rotational acceleration of the driving wheel when the vehicle is accelerating based on the detected rotational speed, and wherein, when the computed rotational acceleration exceeds an acceleration determination value, which is predetermined for judging whether the driving wheel is skidding, the controller decreases an engaging force of one of the clutches that corresponds to the moving direction of the vehicle for decreasing the power transmitted to the driving wheel by controlling the corresponding clutch valve.

39. (Withdrawn) The industrial vehicle according to claim 38, further comprising a brake for braking the driving wheel, wherein, when the rotational acceleration exceeds the acceleration determination value, the controller causes the brake to brake the driving wheel.

40. (Original) The industrial vehicle according to claim 38, wherein the driving wheel is one of left and right driving wheels, and the sensor is one of sensors, each corresponding to one of the driving wheels, wherein the controller computes the rotational acceleration of each driving wheel based on the rotational speed detected by the corresponding sensor, and wherein, when the rotational acceleration of at least one of the driving wheels exceeds the acceleration determination value, the controller decreases an engaging force of one of the clutches that corresponds to the moving direction of the vehicle.

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41. (Withdrawn) The industrial vehicle according to claim 38, further comprising a shift actuator, which is shifted among a forward position for moving the vehicle forward, a reverse position for moving the vehicle backward and a neutral position for stopping the vehicle, wherein, when the shift actuator is shifted to the forward position, the controller controls the forward clutch valve to engage the forward clutch, when the shift actuator is shifted to the reverse position, the controller controls the reverse clutch valve to engage the reverse clutch, and when the shift actuator is shifted to the neutral position, the controller controls the clutch valves to disengage the clutches, and wherein, when the shift actuator is shifted from the neutral position to the forward position or to the reverse position, the controller controls one of the clutch valves that corresponds to a post-shifting clutch, which is one of the clutches that corresponds to the position of the shift actuator after the shift actuator is shifted, such that an engaging force of the post-shifting clutch is temporarily maintained at an intermediate value,

which is smaller than a maximum value of an engaging force of the post-shifting clutch, and is then increased to the maximum value.

42. (Withdrawn) The industrial vehicle according to claim 41, wherein the controller changes the intermediate value in accordance with the weight of a load carried by the vehicle.

43. (Withdrawn) The industrial vehicle according to claim 41, wherein the controller gradually increases the intermediate value at a rate, which is determined in accordance with the engine speed.

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44. (Withdrawn) The industrial vehicle according to claim 41, wherein, when the difference between an input rotational speed and an output rotational speed of the post-shifting clutch falls below a predetermined value, the controller increases the engaging force of the post-shifting clutch from the intermediate value to the maximum value.

45. (Cancelled).

46. (Cancelled).

47. (Cancelled).

48. (Twice Amended) An industrial vehicle comprising:

an engine;

a torque converter;

a transmission coupled to the engine by the torque converter, wherein the transmission includes a hydraulic forward clutch, which is engaged when the vehicle is moving forward, and a hydraulic reverse clutch, which is engaged when the vehicle is moving backward, and wherein each clutch produces an engaging force, the magnitude of the which corresponds to a hydraulic pressure applied to the clutch;

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a differential;

a pair of driving wheels coupled to the transmission by the differential, wherein the differential permits the rotational speeds of the driving wheels to differ;

a pair of sensors, which correspond to the driving wheels, respectively, wherein each sensor detects the rotational speed of the corresponding one of the driving wheels; and

a controller for controlling the clutches, wherein the controller computes the rotational accelerations of the driving wheels when the vehicle is accelerating based on the detected rotational speeds, wherein, when the greater of the computed rotational accelerations exceeds an acceleration determination value, which is predetermined for judging whether each driving wheel is skidding, the controller decreases the engaging force of one of the clutches that corresponds to the moving direction of the vehicle for decreasing the power transmitted to the driving wheels.

49. (Cancelled).

50. (Withdrawn) The industrial vehicle according to claim 48, further comprising a pair of steered wheels, wherein the skid detector computes a predicted moving speed of each driving wheel relative to the road surface based on the rotational speed and the steered angle of the steered wheels, and the skid detector computes a detected moving speed of each driving wheel relative to the road surface based on the rotational speed of the driving wheel, and wherein the skid detector computes a value that is proportional to the difference between the predicted moving speed and the detected moving speed of each driving wheel as the corresponding skid value.